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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,750	04/02/2004	Ricky Dean Madson	16571-US	1145

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EXAMINER
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VANAMAN, FRANK BENNETT

ART UNIT	PAPER NUMBER
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3618

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/816,750	MADSON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Frank Vanaman	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) 39 and 46-65 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16, 17, 20-24, 26-36, 38, 40, 43-45 is/are rejected.
- 7) ☒ Claim(s) 15, 18, 19, 25, 37, 41 and 42 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                          | 6) <input type="checkbox"/> Other: _____                          |

**Status of Application**

1. Applicant's amendment, filed Sept 14, 2006, has been entered in the application. Claims 1-65 remain pending, claims 39 and 46-65 are withdrawn from consideration.

**Claim Rejections - 35 USC § 102**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-6, 20, 21, 27, 32, 33, 44 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Emond et al. (US 5,590,624). Emond et al. teach a vehicle cooling package including a heat exchanger assembly (52, 54) fluidly connected with an engine portion of the vehicle in order to operate, a unitary fan shroud (56) mounted adjacent the heat exchanger and connected thereto (note bracket, figure 2); the shroud having a diverting surface (62), a diverter plate (46) with a central aperture (88; additionally 55) mounted adjacent the fan shroud and spaced therefrom, having at least one flange (bottom side of 90) extending in a perpendicular direction to the general plane of the forward extent of the diverter, a fan (48, 65) mounted for rotation between the shroud and plate; a vehicle hood (22, 24) enclosing the assembly; having air discharge openings including diffuser screen or grid portions (32) extending along at least the top, and further including sides extending closely proximate a lower end of the space between the plate and shroud (note figure 1), the lower section of the grid portions (32) positioned closely proximate a front hood support (e.g., 34) to the breadth claimed; the fan shroud diverting surface having an angle (compare 62 and flow indicating angle) which closely matches the discharge direction of the fan element (48, 65; also note col. 3, lines 46-55), the diverter plate comprising an angle corresponding closely to the discharge of the fan (48, 65); the air being discharged at a comparatively high velocity compared with a discharge arrangement not including the fan portions, shroud and diverter plate; the shroud having an aperture defined by a circumferential wall (58) which extends out from a main portion (60), the diverting surface (62) extending in an opposing direction therefrom; the components being mounted to a vehicle frame (not referenced, shown proximate numerals 58, 60, 62, figure 2);

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4. Claims 27, 29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Albright et al. (US 2003/0136544). Albright et al. teach a fan shroud having a main body portion (66, 69, distal end 69A), with a fan aperture therein (62), which is defined by a circumferential wall (68A) extending outwardly from the shroud body, further including a diverting surface extending from the circumferential wall (e.g., proximate end 68A at the opposing end of the body from distal end 69A), at an angle compared to the fan axis (note figure 9), having a section (e.g., between 68A and 69) corresponding to the fan discharge; and further including at least one mounting flange (69B - note col. 3, lines 66, 67), the corners of the shroud including recess portions (e.g., proximate the arrow end of the lead line for element 50, figure 3; additionally note figure 7) which accommodate plumbing portions (inlet and outlet lines of radiator 48).

#### **Claim Rejections - 35 USC § 103**

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 8, 10, 14, 16, 17, 23, 24, 36, 38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. (Cited above).

*Claim 8:* The reference to Emond et al. is discussed above and fails to teach the shroud as being molded from a thermoplastic or thermoset material. The molding of vehicle ducts and diverters from thermoplastic or thermoset materials is old and well known, for the purpose of providing inexpensive molded objects of comparatively high strength and low weight, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the shroud from a molded thermoplastic or thermoset for the purpose of inexpensively providing the shroud without substantially increasing the weight of the vehicle.

*Claims 10, 17, 40:* The reference to Emond et al. is discussed above and fails to teach the portions of the shroud and/or diverter plate having stiffening ribs. Stiffening ribs on structural items are notoriously old and well known, being provided for the advantage of increasing stiffness while not appreciably increasing weight, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide stiffening ribs on the shroud portion and/or plate portion, for the purpose of rendering

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either or both elements more rigid without substantially increasing their respective weights.

*Claims 14, 36:* While teaching at least one perpendicular flange, the reference to Emond et al. fails to teach a pair thereof. The duplication of already-taught parts is old and well known, for the purpose of amplifying or enhancing the effect of the existing part, and it would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least a pair of perpendicular flanges instead of the single shown flange of Emond et al. for the purpose of providing greater surface area for mounting, or for rigidifying the edges of the plate.

*Claims 16, 38:* The reference to Emond et al. fails to specifically teach plumbing recesses in the plate, however in view of at least one plumbing element traversing the plate (note figure 2, upper portion thereof), it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a recess or aperture in the plate so as to allow the plumbing element to pass through the plate.

*Claim 23:* The reference to Emond et al. fails to teach the specific angle of the fan discharge. Inasmuch as Emond et al. do teach that the fan has a discharge with both axial and radial components, and inasmuch as the out flow is intended specifically to be directed towards surfaces generally perpendicular to the axial direction, it would have been obvious to one of ordinary skill in the art at the time of the invention to adjust an angle of discharge of the fan to be at an angle of approximately 60 degrees to 80 degrees for the purpose of directing a substantial portion of the air flow towards the already-taught outputs.

*Claim 24:* The reference to Emond et al. fails to teach the diverting surface of the shroud and diverter plate as extending completely to the hood portion. In that Emond et al. are specifically focused on the control of flow through the heat exchangers and specific draw of flow through the engine (e.g., through 55), it would have been obvious to one of ordinary skill in the art at the time of the invention to prevent flow through portions of the various compartments except where taught (i.e., through the fan shroud, through the apertures 55) for the purpose of precisely controlling the flow through the assembly, and as such, it would have been obvious to one of ordinary skill in the art at

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the time of the invention to extend the non-flow-inducing portions of the shroud and diverter plates to the hood structure, thus promoting flow only through the taught apertures, allowing precise control over the flow.

7. Claims 7, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. in view of Hitt et al. (US 6,622,783). The reference to Emond et al. fails to teach the provision of the shroud as mountable to the heat exchanger frame, wherein the heat exchanger extends to be partially disposed within the shroud, the shroud including one or more mounting flanges which mate with portions of the heat exchanger frame, the shroud including plumbing recesses. Hitt et al. teach a fan shroud (12) for use in a vehicle cooling system, the shroud including a plurality of flange portions (38, 44) which mate with a heat exchanger (13) and its frame (20, 50), with at least a portion of the heat exchanger being disposed within the shroud (figures 4, 5); the shroud including plumbing recesses (between 44 and 44, for example). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the shroud of the vehicle system of Emond et al. in the format taught by Hitt et al. to include the mating flanges, plumbing recesses and a portion of the heat exchanger disposed within the shroud, for the purpose of providing a secure connection between heat exchanger and shroud, and to ensure efficient air flow through the exchanger.

8. Claims 12, 13, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. in view of Haupt (US 4,018,297). The reference to Emond et al. fails to teach the diverter plate as including a main section and removable section, wherein the sections are provided with mating flanges to facilitate attachment to one another. Haupt teaches a shroud/diverter element (6 in general) for use in an automotive cooling arrangement; the element provided with a plurality of sections (10, 12, 15, 16), at least one (10) being removable from the remaining portions (figure 2), the sections including mating flanges (22, 23, figure 4, for example) allowing fasteners (13, 18) to be used to connect the sections together. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the diverter taught by Emond et al. from a plurality of sections as taught by the diverter/shroud of Haupt, for the purpose of allowing the element to be installed/removed without disassembly of the

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remaining portions of the heat exchange assembly, and for allowing easy access to working elements contained behind it

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. in view of Giolda et al. (US 5,626,185). The reference to Emond et al. fails to teach the provision of wheel well louver discharge vents aligned with the region between the shroud and diverter. Giolda et al. teach a vehicle airflow arrangement including a wheel well louver (37) for allowing heated air to be removed from a heat-exchange and engine compartment area. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the assembly taught by Emond et al. with a wheel well louver arrangement connecting the region between the shroud and diverter to a wheel well, for the purpose of exhausting the heated air and preventing recirculation of already-heated air (specifically taught by Giolda), allowing the vehicle to operate more efficiently.

10. Claims 26 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emond et al. in view of Yamashita et al. (US 5,689,953). The reference to Emond et al. fails to teach the provision of a port in the diverter for directing fan discharge air to a selected component. Yamashita et al. teach a diverter (e.g., 20) for a fan system in a vehicle heat exchanging arrangement, wherein a flow port (28) is provided in addition to a means of removing the bulk of the heated air from the vehicle compartment (e.g., 20b), the flow port being arranged to direct a portion of the air to an pre-selected component (16) for cooling thereof. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide at least one additional port as taught by Yamashita et al. in the diverter taught by Emond et al., directed to a pre-selected component, for the purpose of providing a smaller quantity of ventilation air to cool at least a portion of the pre-selected component.

11. Claims 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albright et al.

*Claim 28:* The reference to Albright et al. is discussed above and fails to teach the shroud as being molded from a thermoplastic or thermoset material. The molding of vehicle ducts and diverters from thermoplastic or thermoset materials is old and well

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known, for the purpose of providing inexpensive molded objects of comparatively high strength and low weight, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the shroud from a molded thermoplastic or thermoset for the purpose of inexpensively providing the shroud without substantially increasing the weight of the vehicle.

*Claim 30:* The reference to Albright et al. is discussed above and fails to teach the portions of the shroud having stiffening ribs. Stiffening ribs on structural items are notoriously old and well known, being provided for the advantage of increasing stiffness while not appreciably increasing weight, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide stiffening ribs on the shroud portion, for the purpose of rendering the shroud more rigid without substantially increasing its weight.

#### **Allowable Subject Matter**

12. Claims 15, 18, 19, 25, 37, 41 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### **Response to Comments**

13. Applicant's comments, filed with the amendment, have been carefully considered. Initially, with respect to the reference to Emond et al., the examiner notes that the flow lines shown at the exit of the fan comprised of portions 48, 63, 65 are understood to be descriptive of the discharge angle of the composite fan absent any evidence to the contrary, and that the angle of the diverter plate 'closely matches' this angle to the breadth actually claimed. Inasmuch as the diffuser portion (65) is connected with and thus rotates with the fan, it is not deemed unreasonable to characterize this portion as being a part of the fan, and indeed in combination with the remaining fan portion, serves to produce a radial component to the output of the fan which is closely matched with the angle of the diverter plate.

As regards the reference to Albright et al., the examiner apologizes for failing to present a complete statement of rejection in the previous office action, inasmuch as the rejection mailed to applicant did not include a phrase which identified the portion of the



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main body proximate 69A to be at an opposite end from the diverting portion proximate 68A. In view of this deficiency in the previous office action, the instant action is made non-final so as to afford applicant an opportunity to respond thereto without the constraints associated with prosecution after Final Rejection.

Finally, the examiner notes that the claims previously indicated as being allowable have not been acknowledged, nor have these claims been placed in condition for allowance.

### Conclusion

14. Any inquiry specifically concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 571-272-6701.

Any inquiries of a general nature or relating to the status of this application may be made through either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A response to this action should be mailed to:

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Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA 22313-1450,

Or faxed to:

PTO Central Fax: 571-273-8300

**F. VANAMAN**  
**Primary Examiner**  
**Art Unit 3618**



11/24/06